

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001505**Date Inspected:** 21-Feb-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** Steve Williams**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Hinge K**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Joe Adame was present at Oregon Iron Works (OIW) to observe welding being performed on a Procedure Qualification Record for this project. The following observations were recorded.

I. OIW Shop/ Bay 2:

OIW PQR # CS-025: The Quality Assurance (QA) Inspector was present to witness welding continue on Procedure Qualification Record (PQR) # CS-025. The welding is being attempted with the submerged arc welding process in the flat position (1G). The PQR weld joint is double vee groove weld with a 60° included angle and a closed root. The material being welded is a 100 millimeter (mm) thick A709 grade HPS 485W steel. The PQR is a tubular mock up section of a splice to be performed in production welding. The welding was being performed by OIW welder Craig Jacobsen (WID# J6). On this date, the test piece had final cover passes deposited on the exterior of the tubular mock up. After welding, OIW Welding Engineer Greg Roberts inspected the completed test piece. Mr. Roberts stated that the completed welds appeared to be acceptable. The QA Inspector also performed an observation of the PQR. Mr. Roberts stated that OIW will commence with welding of SAW 1F & 2F fillet weld soundness test for this PQR (CS-025). The QA Inspector was present to witness welding of the 1F & 2F fillet weld tests. OIW maintained the same amperage and volts as used in the mock up PQR. The actual achieved weld sizes for both tests were 8 mm (single pass and multiple pass fillet welds). See TL-6032's Welding Witness Reports on this date for additional information. Note* OIW has proceeded with PQR testing without receiving a formal approval from the State. The State requested additional information to be included in the PQR's that was not submitted prior to performing the tests. (See State letter no. 05.03.01-001314 Item T)

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II. OIW QC Office: The QA Inspector received a data recording sheet from OIW Welding Engineer Greg Roberts after all testing was complete for PQR CS-025. The data sheet contained all variables and relevant information. While reviewing the data, the QA Inspector observed that OIW appeared to exceed the maximum interpass temperature for the 100 mm. thick HPS485W PQR. OIW had recorded 500°, 475° and 460° Fahrenheit (260°, 246° and 237° Celsius). In accordance with the project special provisions (section 10-1.59 Steel structures, Welding of 485W Steel) maximum interpass temperature is 230° C. This was immediately brought to the attention of OIW QCM Steve Williams and Welding Engineer Greg Roberts. Mr. Williams was not aware of the interpass requirement for 485W steel. Mr. Roberts stated that he was complying with the requirements of AWS D1. 5-2002 Section 12.14. Which allow up to 260°C/500°F interpass temperature for 485W steel. The QA Inspector informed Mr. Roberts that special provisions supersede code requirements. Mr. Roberts agreed and stated that this does not confine OIW from submitting the required interpass temperature (230° C) on WPS's to be submitted. Mr. Roberts also stated that he was certain that heat input averages are still in compliance with the special provisions. The QA Inspector stated that the recoding of the temperatures in customary units appeared to aid in confusion with the requirements. Mr. Williams agreed and again claimed that the final report to be submitted for the PQR will be in SI units.

The QA Inspector consulted with Senior Lead Inspector Robert Mertz on the issue with the interpass temperature. Mr. Mertz also informed the QA Inspector that OIW should not exceed 230° C and need to abide by the special provision requirements. Mr. Mertz also informed the QA Inspector that OIW will not receive approval for excessive temperatures listed in welding procedures submitted to be approved.

(Attached pictures from this observation)



Summary of Conversations:

As noted in the contents of this report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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Inspected By:	Adame,Joe	Quality Assurance Inspector
Reviewed By:	Wright,Mark	QA Reviewer
